UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/713,041	11/16/2000	Shinya Yajima	0879-0292P	3122

2292 7590 04/06/2007
BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER	
YODER III, CHRISS S	
ART UNIT	**PAPER NUMBER**
2622	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	04/06/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 04/06/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	09/713,041	YAJIMA, SHINYA	
	Examiner	Art Unit	
	Chriss S. Yoder, III	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 January 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 17-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13, 17-18, 20, 23-27, and 31-39* is/are rejected.

7)☒ Claim(s) *19,21,22 and 28-30* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 September 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 25, 2007 has been entered.

Response to Arguments

Applicant's arguments filed October 26, 2006 are not persuasive.

Applicant argues, with respect to the use of Morofuji in the rejection of claim 1, that detecting whether or not panning or tilting has occurred is in no way equivalent to correcting for a vibration of a camera. However, the Examiner notes that the detection of pan/tilt was not considered to be equivalent to the vibration detection, but rather it is considered to be part of the vibration detection system, so that when the panning and tilting operation is detected, the HPF characteristics of the vibration detection are changed in order to only detect the vibration frequencies caused by the pan/tilt operation (column 23, lines 34-36).

Applicant also argues, with respect to the use of Morofuji in the rejection of claim 1, that during the time when panning/tilting is occurring, the detection of the angular-

velocity signal and the angular-displacement is continued, and that contrary to the feature of the correcting device of the claim, image-shake control occurs regardless of whether or not panning or tilting is determined. However, the Examiner points out that in order for panning and tilting to be detected, the detected velocity has to be constant (i.e. acceleration value has to be substantially zero) otherwise the pan/tilt period is not considered to be in progress (Morofuji – column 23, lines 15-43). Consequently, since the vibration detection system corrects VAP to substantially zero while the pan/tilt is in progress, the only purpose of the detection of the angular-velocity signal and the angular-displacement is considered to be used to determine the end of a pan/tilt operation (column 23, lines 34-36) and not for the purposes of compensating for image shake. Therefore, image-shake control is not considered to be performed during panning/tilting because the optical system is centered until pan/tilt has ended (i.e. when another shake is detected and the acceleration is no longer zero).

Applicant also argues, with respect to the use of Ohkawara in the rejection of claim 1, that panning is determined to occur only when the angular acceleration is non-zero, and that this completely contradicts the claimed feature where the correcting device corrects the integrated value when the acceleration value is substantially zero. However, the Examiner notes that the determination occurring when the angular acceleration is non-zero (fig. 29B) is used to determine the start and end times of the pan/tilt operation (i.e. the changes in velocity caused by the pan/tilt operation), not the actual period when

pan/tilt operation is in progress. The actual pan/tilt operation is considered to be the portion of figure 29B having a value of zero (the center of the graph).

Applicant argues, with respect to claim 2, that Miyamoto the vibration compensation lens 113 is driven to the center poison in the time period set, and that during this set time, the lens is actually moving, which is in complete contrast to claim 2 which recites that the controlling device keeps the vibration isolating device at a predetermined position until a predetermined time passes. However, the Examiner notes that although the lens 113 is may be moving during step S1305 within the predetermined time, that after the lens is positioned, the lens remains centered without moving for a predetermined period of time in step S1316.

Applicant argues, with respect to claim 18, that Terui cannot be combined with Morofuji and Ohkawara as suggested by the Examiner because Morofuji discloses a high pass filter used to eliminate a direct-current component of an angular velocity signal. And that if the high pass filter as disclosed in Morofuji is replaced with the low pass filter as disclosed in Terui as suggested by the Examiner, then the direct-current component of the velocity signal would not be eliminated and render Morofuji unsatisfactory for its intended purpose. However, nowhere in the rejection of claim 18 did the Examiner suggest the replacement of the HPF of Morofuji with the LPF of Terui. Conversely, the Examiner notes that Terui actually discloses the use of both the HPF and LPF in combination, therefore, the intended modification of Morofuji is not to replace the HPF,

but rather to add a LPF to work in combination with the HPF and thus would not render Morofuji unsatisfactory for its intended purpose.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 38 and 39 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. No description of the limitation that "the control device does not perform a judgment of panning or tilting" is found in the specification, and is therfore considered to be new matter.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

The term "1" in claims 26 and 34 is a relative term which renders the claim indefinite. The term "1" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Therefore, the examiner has interpreted the claim as follows: "wherein the portion is less than the full compensating

driving signal at a beginning of the predetermined period." For purposes of examination, the claim will be examined as understood by the Examiner.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 20, 31, and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Okazaki (US Patent # 5,794,078).

2. In regard to claim 20, note Okazaki discloses the use of a vibration isolator that prevents an image blur due to a vibration of a camera by moving a correcting optical system (column 10, lines 62-63), the vibration isolator comprising a vibration acceleration determining device that determines an acceleration of the vibration (column 8, lines 9-13), an integrating device that twice-integrates the acceleration determined by the vibration acceleration determining device (column 10, lines 30-38), a correcting device that corrects the twice-integrated value calculated by the integrating device to substantially zero when the acceleration value determined by the vibration acceleration determining device is substantially zero (column 15, lines 17-34), and a controlling device that controls a position of the correcting optical system according to the

corrected twice-integrated value to thereby prevent the image blur due to the vibration of the camera (column 10, lines 62-63 and column 15, lines 17-34).

3. In regard to claim 31, note Okazaki discloses the use of a switching device configured to turn on and off vibration isolation (column 15, lines 8-15) and a driving circuit configured to receive a driving signal from the controlling device and moving the correcting optical system based on the driving signal from the controlling device (column 10, lines 62-63), wherein after the switching device turns on the vibration isolation, the controlling device calculates a compensating driving signal necessary to compensate for the image blur due to the vibration of the camera based on the twice-integrated value calculated by the integrating device (column 15, lines 17-26), and wherein the driving signal applied to the driving circuit from the controlling device is based on the calculated compensating driving signal (column 10, lines 62-63 and column 15, lines 17-34).

4. In regard to claim 37, note Okazaki discloses that the correcting device that corrects the twice-integrated value calculated by the integrating device to substantially zero when the acceleration value determined by the vibration acceleration determining device is substantially zero without regard to a position of the correcting optical system prior the correction of the twice-integrated value (column 16, lines 16-34, the position of the correcting optical system prior the correction of the twice-integrated value is not considered when correcting the integrated value).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 17, 23 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morofuji et al. (US Patent # 6,208,377) in view of Ohkawara et al. (US Patent # 6,630,950).

6. In regard to claim 1, note Morofuji discloses the use of a vibration isolator that prevents an image blur due to a vibration of a camera by moving a correcting optical system (column 22, lines 50-64), the vibration isolator comprising a vibration speed determining device that determines a speed of the vibration (column 22, lines 50-53), an integrating device that integrates the speed determined by the vibration speed determining device (column 23, lines 1-6), and a controlling device that controls a position of the correcting optical system according to the integrated value (column 23, lines 1-12 and figure 22: 305 and 308; the integrated value is sent to the driving circuit to control the correcting optical system).

Therefore, it can be seen that the Morofuji device lacks a differentiating device that differentiates the speed determined by the vibration speed determining device and a correcting device that corrects the integrated value calculated by the integrating device to substantially zero when the differentiated value calculated by the differentiating device is substantially zero.

Ohkawara discloses the use of a differentiating device that differentiates the speed determined by the vibration speed determining device (column 28, lines 5-15 and 37-39; the velocity signal is differentiated to determine the acceleration in order to detect panning and tilting) and by combining the Ohkawara device to detect panning and tilting with the Morofuji device, Morofuji teaches the use of a correcting device that corrects the integrated value calculated by the integrating device to substantially zero when the differentiated value calculated by the differentiating device is substantially zero (column 23, lines 22-43; Morofuji teaches that when the device is panning or tilting, i.e. constant velocity and zero acceleration, that the correction value is corrected to zero, and by combining with Ohkawara to use acceleration for the pan/tilt detection, one would reach applicant's invention). Ohkawara teaches that the use of a differentiating device that differentiates the speed determined by the vibration speed determining device in order to detect pan/tilt is preferred in order to detect only start and end periods of the pan/tilt (column 27, lines 56-60). Therefore, it would have been obvious to one of ordinary skill in the art to modify the Morofuji device to include the use of a differentiating device as suggested by Ohkawara.

7. In regard to claim 17, note Morofuji discloses that the controlling device controls a movement of a correcting lens of the correcting optical system within a plane that is perpendicular to an optical axis of the camera (figure 1: 9 and 11).

8. In regard to claim 23, note Morofuji discloses the use of a driving circuit configured to receive a driving signal from the controlling device and moving the correcting optical system based on the driving signal from the controlling device (figure

22: driving circuit 308 moves the correcting optical system based on the signal received from controlling device COM2), and that the controlling device calculates a compensating driving signal a compensating driving signal necessary to compensate for the image blur due to the vibration of the camera based on the integrated value calculated by the integrating device (column 23, lines 1-12 and figure 22: 305 and 308; the integrated value is sent to the driving circuit to control the correcting optical system), and wherein the driving signal applied to the driving circuit from the controlling device is based on the calculated compensating driving signal (column 23, lines 1-12 and figure 22: 305 and 308; the integrated value is sent to the driving circuit to control the correcting optical system). And Ohkawara discloses the use of a switching device configured to turn on and off vibration isolation (column 5, lines 19-21), and that after the switching device turns on the vibration isolation, the compensating driving signal is calculated (column 5, lines 29-40).

9. In regard to claim 36, note Morofuji discloses that the correcting device that corrects the twice-integrated value calculated by the integrating device to substantially zero when the acceleration value determined by the vibration acceleration determining device is substantially zero without regard to a position of the correcting optical system prior the correction of the twice-integrated value (column 23, lines 25-43, the position of the correcting optical system prior the correction of the twice-integrated value is not considered when correcting the integrated value).

10. Claims 2-5, 10-13, 24, and 26-27are rejected under 35 U.S.C. 103(a) as being unpatentable over Morofuji et al. (US Patent # 6,208,377) in view of Ohkawara et al. (US Patent # 6,630,950) and further in view of Miyamoto et al (US Patent # 6,332,060).

11. In regard to claim 2, note the primary reference of Morofuji in view of Ohkawara discloses the use of a vibration isolator that prevents an image blur due to a vibration of a camera by moving a correcting optical system, as claimed in claim 1 above. Therefore, it can be seen that the primary reference fails to disclose the use of a switching device that turns on and off vibration isolation, wherein the controlling device keeps the vibration isolating device at a position until a predetermined time passes after the switching device turns on the vibration isolation and moves the vibration isolating device according to the vibration after the predetermined time passes.

Miyamoto discloses the use of a switching device that turns on and off vibration isolation (column 31, lines 51-63; and figure 20: S1007-1010, when the shutter button is pressed half way, it is considered to be turning the vibration control on), wherein the controlling device keeps the vibration isolating device at a position until a predetermined time passes after the switching device turns on the vibration isolation and moves the vibration isolating device according to the vibration after the predetermined time passes (column 34, lines 6-31 and figure 23: S1305-1316; the centering process in step S1012 of figure 20 is seen in figure 23, and the isolating device is held at the initial position until a set time passes). Miyamoto teaches that the use of a switching device that turns on and off vibration isolation, wherein the controlling device keeps the vibration isolating device at a position until a predetermined time passes after the switching device turns

on the vibration isolation and moves the vibration isolating device according to the vibration after the predetermined time passes is preferred in order to prevent the detection of an incorrect correction value (column 34, lines 18-27). Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device of Morofuji and Ohkawara to include the use of a switching device that turns on and off vibration isolation, wherein the controlling device keeps the vibration isolating device at a position until a predetermined time passes after the switching device turns on the vibration isolation and moves the vibration isolating device according to the vibration after the predetermined time passes, as suggested by Miyamoto.

12. In regard to claim 3, note Miyamoto discloses that the controlling device stops the vibration isolating device at a position when the switching device turns off the vibration isolation (column 26, lines 35-41; column 32, lines 26-31; and figure 20: S1015-S1019; when the shutter button is released ,S1015, it is considered to be turning off the vibration isolating device).

13. In regard to claim 4, note Miyamoto discloses the use of a controlling device that gradually decreases a driving amount of the vibration isolating device to stop the vibration isolating device at a position after the switching device turns off the vibration isolation (column 26, lines 35-41; column 32, lines 26-31; and figure 20: S1015-S1019; when the shutter button is released ,S1015, it is considered to be turning off the vibration isolating device).

14. In regard to claim 5, note Miyamoto discloses that the controlling device does not calculate a driving signal for driving the vibration isolating device when the vibration

isolation is off (column 32, lines 27-31; the shake detection sensor stops detection and the lens is held in place) and starts calculating the driving signal after the switching device turns on the vibration isolation (column 31, lines 24-27; the shake detection sensor starts calculating when the shutter button is pressed half way).

15. In regard to claim 10, note the primary reference of Morofuji in view of Ohkawara discloses the use of a vibration isolator that prevents an image blur due to a vibration of a camera by moving a correcting optical system, as claimed in claim 1 above. Therefore, it can be seen that the primary reference fails to disclose the use of a switching device that turns on and off vibration isolation, wherein the controlling device starts moving the vibration isolating device with a driving amount that is smaller than that for preventing the image blur when the switching device turns on the vibration isolation and drives the vibration isolating device while gradually increasing the driving amount to that for preventing the image blur.

Miyamoto discloses the use of a switching device that turns on and off vibration isolation (column 31, lines 51-63; and figure 20: S1007-1010, when the shutter button is pressed half way, it is considered to be turning the vibration control on), wherein the controlling device starts moving the vibration isolating device with a driving amount that is smaller than that for preventing the image blur when the switching device turns on the vibration isolation and drives the vibration isolating device while gradually increasing the driving amount to that for preventing the image blur (column 21, line 52- column 22, line 45 and column 26, lines 24-27; when the isolation device is turned on, the driving duty/lens velocity VR are gradually increased until they reach the target lens velocity VC

for 100% correction). Miyamoto teaches that the use of a switching device that turns on and off vibration isolation, wherein the controlling device starts moving the vibration isolating device with a driving amount that is smaller than that for preventing the image blur when the switching device turns on the vibration isolation and drives the vibration isolating device while gradually increasing the driving amount to that for preventing the image blur is preferred in order to compensate for overshoot or oscillation caused by starting the motor at full driving duty (column 25, lines 1-5). Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device of Morofuji and Ohkawara to include the use of a switching device that turns on and off vibration isolation, wherein the controlling device starts moving the vibration isolating device with a driving amount that is smaller than that for preventing the image blur when the switching device turns on the vibration isolation and drives the vibration isolating device while gradually increasing the driving amount to that for preventing the image blur in order to compensate for overshoot or oscillation caused by starting the motor at full driving duty, as suggested by Miyamoto.

16. In regard to claim 11, note Miyamoto discloses that the controlling device stops the vibration isolating device at a position when the switching device turns off the vibration isolation (column 26, line 35-41; column 32, lines 26-31; and figure 20: S1015-S1019, when the shutter button is released it is considered to be turning off the isolating device).

17. In regard to claim 12, note Miyamoto discloses the use of a controlling device that gradually decreases a driving amount of the vibration isolating device to stop the

vibration isolating device at a position after the switching device turns off the vibration isolation (column 26, lines 35-41; column 32, lines 26-31; and figure 20: S1015-S1019; when the shutter button is released ,S1015, it is considered to be turning off the vibration isolating device).

18. In regard to claim 13, note Miyamoto discloses that the controlling device does not calculate a driving signal for driving the vibration isolating device when the vibration isolation is off (column 32, lines 27-31; the shake detection sensor stops detection and the lens is held in place) and starts calculating the driving signal after the switching device turns on the vibration isolation (column 31, lines 24-27; the shake detection sensor starts calculating when the shutter button is pressed half way).

19. In regard to claim 24, note the primary reference of Morofuji in view of Ohkawara discloses the use of a vibration isolator that prevents an image blur due to a vibration of a camera by moving a correcting optical system, as claimed in claim 23 above. Therefore, it can be seen that the primary reference fails to disclose that for a predetermined period of time after the switching device turns on the vibration isolation, the controlling device does not output the driving signal, and wherein after the predetermined period of time, the controlling device outputs the compensating driving signal as the driving signal.

Miyamoto discloses that for a predetermined period of time after a switching device turns on the vibration isolation, a controlling device does not output the driving signal, and that after the predetermined period of time, the controlling device outputs the compensating driving signal as the driving signal (column 35, lines 28-37 and column

26, lines 38-41, the driving signal is not considered to be output during the short-break state for a predetermined period of time, and after this time, the signal is output to compensate for vibration; and figure 23: S1305-1316; the centering process in step S1012 of figure 20 is seen in figure 23, and the isolating device is held at the initial position until a set time passes, then advances to S1013 to compensate for vibration). Miyamoto teaches that having a predetermined period of time after a switching device turns on the vibration isolation, a controlling device does not output the driving signal, and that after the predetermined period of time, the controlling device outputs the compensating driving signal as the driving signal is preferred in order to prevent overshooting of the correction value on start up (column 25, lines 1-29, the running control is used to prevent overshooting). Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device of Morofuji and Ohkawara to include the use of a predetermined period of time after a switching device turns on the vibration isolation, in which a controlling device does not output the driving signal, and that after the predetermined period of time, the controlling device outputs the compensating driving signal as the driving signal is preferred in order to prevent overshooting of the optical system, as suggested by Miyamoto.

20. In regard to claim 26, note the primary reference of Morofuji in view of Ohkawara discloses the use of a vibration isolator that prevents an image blur due to a vibration of a camera by moving a correcting optical system, as claimed in claim 23 above. Therefore, it can be seen that the primary reference fails to disclose that during a predetermined period of time after the switching device turns on the vibration isolation,

the controlling device outputs a portion of the calculated compensating driving signal as the driving signal, wherein the portion gradually increases during the predetermined period such that the driving signal at the end of the predetermined period is the full compensating driving signal, and wherein the portion is less than the full compensating driving signal at a beginning of the predetermined period.

Miyamoto discloses that during a predetermined period of time after a switching device turns on the vibration isolation, a controlling device outputs a portion of the calculated compensating driving signal as the driving signal, wherein the portion gradually increases during the predetermined period such that the driving signal at the end of the predetermined period is the full compensating driving signal, and wherein the portion is less than the full compensating driving signal at a beginning of the predetermined period (column 25, lines 1-27, the fifth element of the equation for calculating the compensation signal is either lowered or elimnated in order to gradually increase the signal and prevent overshooting the vibration). Miyamoto teaches that the use of a controlling device that outputs a portion of the calculated compensating driving signal as the driving signal during a predetermined period of time after a switching device turns on the vibration isolation, wherein the portion gradually increases during the predetermined period such that the driving signal at the end of the predetermined period is the full compensating driving signal, and wherein the portion is less than the full compensating driving signal at a beginning of the predetermined period is preferred in order to prevent overshooting the vibration (column 25, lines 1-27). Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device

of Morofuji and Ohkawara to include the use of a controlling device that outputs a portion of the calculated compensating driving signal as the driving signal during a predetermined period of time after a switching device turns on the vibration isolation, wherein the portion gradually increases during the predetermined period such that the driving signal at the end of the predetermined period is the full compensating driving signal, and wherein the portion is less than the full compensating driving signal at a beginning of the predetermined period in order to prevent overshooting the vibration, as suggested by Miyamoto.

21. In regard to claim 27, note the primary reference of Morofuji in view of Ohkawara discloses the use of a vibration isolator that prevents an image blur due to a vibration of a camera by moving a correcting optical system, as claimed in claim 23 above. Therefore, it can be seen that the primary reference fails to disclose that during a predetermined period of time after the switching device turns off the vibration isolation, the controlling device outputs a portion of the calculated compensating driving signal as the driving signal, wherein the portion gradually decreases during the predetermined period such that the driving signal at the end of the predetermined period is zero.

Miyamoto discloses that during a predetermined period of time after the switching device turns off the vibration isolation, the controlling device outputs a portion of the calculated compensating driving signal as the driving signal, wherein the portion gradually decreases during the predetermined period such that the driving signal at the end of the predetermined period is zero (column 32, lines 22-31 and column 26, lines 25-31). Miyamoto teaches that the use of a controlling device that outputs a portion of

the calculated compensating driving signal as the driving signal during a predetermined period of time after the switching device turns off the vibration isolation, wherein the portion gradually decreases during the predetermined period such that the driving signal at the end of the predetermined period is zero is preferred in order to promote smooth and precise contol and stopping (column 41, lines 25-41). Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device of Morofuji and Ohkawara to include the use of a controlling device that outputs a portion of the calculated compensating driving signal as the driving signal during a predetermined period of time after the switching device turns off the vibration isolation, wherein the portion gradually decreases during the predetermined period such that the driving signal at the end of the predetermined period is zero in order to promote smooth and precise contol and stopping, as suggested by Miyamoto.

22. Claim 6-7, 9 and 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morofuji et al. (US Patent # 6,208,377) in view of Ohkawara et al. (US Patent # 6,630,950) and further in view of Imafuji et al. (US Patent # 5,617,177).

23. In regard to claim 6, note the primary reference of Morofuji in view of Ohkawara discloses the use of a vibration isolator that prevents an image blur due to a vibration of a camera by moving a correcting optical system, as claimed in claim 1 above. Therefore, it can be seen that the primary reference fails to disclose the use of a switching device that turns on and off vibration isolation, wherein the controlling device that keeps the vibration isolating device at an origin until a position of the vibration

isolating device for preventing the image blur is the origin after the switching device turns on the vibration isolation and moves the vibration isolating device according to the vibration after the position of the vibration isolating device for preventing the image blur is the origin.

Imafuji discloses the use of a switching device that turns on and off vibration isolation (column 4, line 65 – column 5, line 5; and figure 5: S22, when the shutter button is pressed half way, it is considered to be turning the vibration control on), wherein the controlling device that keeps the vibration isolating device at an origin until a position of the vibration isolating device for preventing the image blur is the origin after the switching device turns on the vibration isolation and moves the vibration isolating device according to the vibration after the position of the vibration isolating device for preventing the image blur is the origin (column 5, lines 15-16; and figure 5: S24, the vibration isolator is set to an initial position when the isolator is turned on and move the isolating device according to the vibration after the position of the vibration isolating device for preventing the image blur is the origin). Imafuji teaches that the use of a switching device that turns on and off vibration isolation, wherein the controlling device that keeps the vibration isolating device at an origin until a position of the vibration isolating device for preventing the image blur is the origin after the switching device turns on the vibration isolation and moves the vibration isolating device according to the vibration after the position of the vibration isolating device for preventing the image blur is the origin is preferred in order to compensate for drifts (column 1, lines 30-40 and column 5, lines 33-38; by setting the initial position to a known position, there is no error

in position detection caused by drifts). Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device of Morofuji and Ohkawara to include the use of a switching device that turns on and off vibration isolation, wherein the controlling device that keeps the vibration isolating device at an origin until a position of the vibration isolating device for preventing the image blur is the origin after the switching device turns on the vibration isolation and moves the vibration isolating device according to the vibration after the position of the vibration isolating device for preventing the image blur is the origin, as suggested by Imafuji.

24. In regard to claim 7, note Imafuji discloses that the controlling device stops the vibration isolating device at a position when the switching device turns off the vibration isolation (column 5, line 65 –column 6 line 20; and figure 5: S30-S34, when the shutter button is released it is considered to be turning off the isolating device).

25. In regard to claim 9, note Imafuji discloses that the controlling device does not calculate a driving signal for driving the vibration isolating device when the vibration isolation is off (column 6, lines 1-20; the shake detection sensor stops detection and the lens is held in place) and starts calculating the driving signal after the switching device turns on the vibration isolation (column 5, lines 1-21; the shake detection sensor starts calculating when the shutter button is pressed half way).

26. In regard to claim 25, note the primary reference of Morofuji in view of Ohkawara discloses the use of a vibration isolator that prevents an image blur due to a vibration of a camera by moving a correcting optical system, as claimed in claim 23 above. Therefore, it can be seen that the primary reference fails to disclose that after the

switching device turns on the vibration isolation, the controlling device does not output the driving signal until when the calculated compensating driving signal becomes zero, and when the calculated compensating driving signal becomes zero, the controlling device outputs the compensating driving signal as the driving signal.

Imafuji discloses that after the vibration isolation is turned on, a controlling device does not output the driving signal until when the calculated compensating driving signal becomes zero, and when the calculated compensating driving signal becomes zero, the controlling device outputs the compensating driving signal as the driving signal (column 5, lines 32-38, the motor is not driven until the correction amount is equal to zero). Imafuji teaches that the use of a controlling device that does not output the driving signal until the calculated compensating driving signal becomes zero, and when the calculated compensating driving signal becomes zero, the controlling device outputs the compensating driving signal as the driving signal is preferred in order to compensate for shake detection drifts (column 1, lines 55-61). Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device of Morofuji and Ohkawara to include the use of a controlling device that does not output the driving signal until the calculated compensating driving signal becomes zero, and when the calculated compensating driving signal becomes zero, the controlling device outputs the compensating driving signal as the driving signal order to compensate for shake detection drifts, as suggested by Imafuji.

27. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morofuji et al. (US Patent # 6,208,377) in view of Ohkawara et al. (US Patent # 6,630,950) and further in view of Imafuji et al. (US Patent # 5,617,177) and Miyamoto et al (US Patent # 6,332,060).

28. In regard to claim 8, note the primary reference of Morofuji in view of Ohkawara and Imafuji discloses the use of a vibration isolator that prevents an image blur due to a vibration of a camera by moving a correcting optical system, as claimed in claim 6 above. Therefore, it can be seen that the primary reference fails to disclose the use of a controlling device that gradually decreases a driving amount of the vibration isolating device to stop the vibration isolating device at a position after the switching device turns off the vibration isolation. Miyamoto discloses the use of a controlling device that gradually decreases a driving amount of the vibration isolating device to stop the vibration isolating device at a position after the switching device turns off the vibration isolation (column 26, lines 35-41; column 32, lines 26-31; and figure 20: S1015-S1019; when the shutter button is released, S1015, it is considered to be turning off the vibration isolating device). Miyamoto teaches the use of gradually decreasing a driving amount in order to correctly center the lens (column 26, lines 10-15). Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device to include the use of gradually decreasing a driving amount of the vibration isolating device to stop the isolating device at a position after the isolating device is turned off so as to correctly center the lens.

29. Claim 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morofuji et al. (US Patent # 6,208,377) in view of Ohkawara et al. (US Patent # 6,630,950) and further in view of Terui et al (US Patent # 5,717,611).

30. In regard to claim 18, note the primary reference of Morofuji in view of Ohkawara discloses the use of a vibration isolator that prevents an image blur due to a vibration of a camera by moving a correcting optical system, as claimed in claim 1 above. Therefore, it can be seen that the primary reference fails to disclose the use of a low pass filter for filtering a vibration speed signal from the vibration speed determining device, wherein the differentiating device and the integrating device respectively differentiates and integrates the filtered vibration speed signal from the low pass filter.

Terui discloses the use of a low pass filter for filtering a vibration speed signal from the vibration speed determining device, wherein the signal is processed for vibration correction using the filtered vibration speed signal from the low pass filter (column 1, lines 19-22 and column 2, lines 60-63). Terui teaches that the use of a low pass filter for filtering a vibration speed signal from the vibration speed determining device, wherein the differentiating device and the integrating device respectively differentiates and integrates the filtered vibration speed signal from the low pass filter is preferred in order to only compensate for slight motions (column 1, lines 19-22 and column 2, lines 10-15). Therefore, it would have been obvious to one of ordinary skill in the art to modify the primary device to include the use of a low pass filter for filtering a vibration speed signal from the vibration speed determining device, wherein the differentiating device and the integrating device respectively differentiates and

integrates the filtered vibration speed signal from the low pass filter is preferred in order to only compensate for slight motions, as suggested by Terui.

31. Claims 32 and 34-35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okazaki (US Patent # 5,794,078) in view of Miyamoto et al (US Patent # 6,332,060).

32. In regard to claim 32, note Okazaki discloses the use of a vibration isolator that prevents an image blur due to a vibration of a camera by moving a correcting optical system, as claimed in claim 31 above. Therefore, it can be seen that Okazaki fails to disclose that for a predetermined period of time after the switching device turns on the vibration isolation, the controlling device does not output the driving signal, and wherein after the predetermined period of time, the controlling device outputs the compensating driving signal as the driving signal.

Miyamoto discloses that for a predetermined period of time after a switching device turns on the vibration isolation, a controlling device does not output the driving signal, and that after the predetermined period of time, the controlling device outputs the compensating driving signal as the driving signal (column 35, lines 28-37 and column 26, lines 38-41, the driving signal is not considered to be output during the short-break state for a predetermined period of time, and after this time, the signal is output to compensate for vibration; and figure 23: S1305-1316; the centering process in step S1012 of figure 20 is seen in figure 23, and the isolating device is held at the initial position until a set time passes, then advances to S1013 to compensate for vibration).

Miyamoto teaches that having a predetermined period of time after a switching device turns on the vibration isolation, a controlling device does not output the driving signal, and that after the predetermined period of time, the controlling device outputs the compensating driving signal as the driving signal is preferred in order to prevent overshooting of the correction value on start up (column 25, lines 1-29, the running control is used to prevent overshooting). Therefore, it would have been obvious to one of ordinary skill in the art to modify Okazaki device to include the use of a predetermined period of time after a switching device turns on the vibration isolation, in which a controlling device does not output the driving signal, and that after the predetermined period of time, the controlling device outputs the compensating driving signal as the driving signal is preferred in order to prevent overshooting of the optical system, as suggested by Miyamoto.

33. In regard to claim 34,note Okazaki discloses the use of a vibration isolator that prevents an image blur due to a vibration of a camera by moving a correcting optical system, as claimed in claim 31 above. Therefore, it can be seen that Okazaki fails to disclose that during a predetermined period of time after the switching device turns on the vibration isolation, the controlling device outputs a portion of the calculated compensating driving signal as the driving signal, wherein the portion gradually increases during the predetermined period such that the driving signal at the end of the predetermined period is the full compensating driving signal, and wherein the portion is less than the full compensating driving signal at a beginning of the predetermined period.

Miyamoto discloses that during a predetermined period of time after a switching device turns on the vibration isolation, a controlling device outputs a portion of the calculated compensating driving signal as the driving signal, wherein the portion gradually increases during the predetermined period such that the driving signal at the end of the predetermined period is the full compensating driving signal, and wherein the portion is less than the full compensating driving signal at a beginning of the predetermined period (column 25, lines 1-27, the fifth element of the equation for calculating the compensation signal is either lowered or elimnated in order to gradually increase the signal and prevent overshooting the vibration). Miyamoto teaches that the use of a controlling device that outputs a portion of the calculated compensating driving signal as the driving signal during a predetermined period of time after a switching device turns on the vibration isolation, wherein the portion gradually increases during the predetermined period such that the driving signal at the end of the predetermined period is the full compensating driving signal, and wherein the portion is less than the full compensating driving signal at a beginning of the predetermined period is preferred in order to prevent overshooting the vibration (column 25, lines 1-27). Therefore, it would have been obvious to one of ordinary skill in the art to modify the Okazaki device to include the use of a controlling device that outputs a portion of the calculated compensating driving signal as the driving signal during a predetermined period of time after a switching device turns on the vibration isolation, wherein the portion gradually increases during the predetermined period such that the driving signal at the end of the predetermined period is the full compensating driving signal, and wherein the portion is

less than the full compensating driving signal at a beginning of the predetermined period in order to prevent overshooting the vibration, as suggested by Miyamoto.

34. In regard to claim 35, note Okazaki discloses the use of a vibration isolator that prevents an image blur due to a vibration of a camera by moving a correcting optical system, as claimed in claim 31 above. Therefore, it can be seen that Okazaki fails to disclose that during a predetermined period of time after the switching device turns off the vibration isolation, the controlling device outputs a portion of the calculated compensating driving signal as the driving signal, wherein the portion gradually decreases during the predetermined period such that the driving signal at the end of the predetermined period is zero.

Miyamoto discloses that during a predetermined period of time after the switching device turns off the vibration isolation, the controlling device outputs a portion of the calculated compensating driving signal as the driving signal, wherein the portion gradually decreases during the predetermined period such that the driving signal at the end of the predetermined period is zero (column 32, lines 22-31 and column 26, lines 25-31). Miyamoto teaches that the use of a controlling device that outputs a portion of the calculated compensating driving signal as the driving signal during a predetermined period of time after the switching device turns off the vibration isolation, wherein the portion gradually decreases during the predetermined period such that the driving signal at the end of the predetermined period is zero is preferred in order to promote smooth and precise contol and stopping (column 41, lines 25-41). Therefore, it would have been obvious to one of ordinary skill in the art to modify the Okazaki device to include

the use of a controlling device that outputs a portion of the calculated compensating driving signal as the driving signal during a predetermined period of time after the switching device turns off the vibration isolation, wherein the portion gradually decreases during the predetermined period such that the driving signal at the end of the predetermined period is zero in order to promote smooth and precise contol and stopping, as suggested by Miyamoto.

35. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okazaki (US Patent # 5,794,078) in view of Imafuji et al. (US Patent # 5,617,177).

36. In regard to claim 33, note Okazaki discloses the use of a vibration isolator that prevents an image blur due to a vibration of a camera by moving a correcting optical system, as claimed in claim 31 above. Therefore, it can be seen that Okazaki fails to disclose that after the switching device turns on the vibration isolation, the controlling device does not output the driving signal until when the calculated compensating driving signal becomes zero, and when the calculated compensating driving signal becomes zero, the controlling device outputs the compensating driving signal as the driving signal.

Imafuji discloses that after the vibration isolation is turned on, a controlling device does not output the driving signal until when the calculated compensating driving signal becomes zero, and when the calculated compensating driving signal becomes zero, the controlling device outputs the compensating driving signal as the driving signal (column 5, lines 32-38, the motor is not driven until the correction amount is equal to zero).

Imafuji teaches that the use of a controlling device that does not output the driving signal until the calculated compensating driving signal becomes zero, and when the calculated compensating driving signal becomes zero, the controlling device outputs the compensating driving signal as the driving signal is preferred in order to compensate for shake detection drifts (column 1, lines 55-61). Therefore, it would have been obvious to one of ordinary skill in the art to modify the Okazaki device to include the use of a controlling device that does not output the driving signal until the calculated compensating driving signal becomes zero, and when the calculated compensating driving signal becomes zero, the controlling device outputs the compensating driving signal as the driving signal order to compensate for shake detection drifts, as suggested by Imafuji.

Allowable Subject Matter

Claims 19, 21-22, and 28-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chriss S. Yoder, III whose telephone number is (571) 272-7323. The examiner can normally be reached on M-F: 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivek Srivastava can be reached on (571) 272-7304. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CSY
March 9, 2007

LIN YE
PRIMARY PATENT EXAMINER